



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/977,409	10/15/2001	Frank Holm Iversen	6495-07	3178

7590 03/19/2003

McCormick, Paulding & Huber LLP  
CityPlace II  
185 Asylum Street  
Hartford, CT 06103-3402

EXAMINER

KIM, CHONG HWA

ART UNIT	PAPER NUMBER
----------	--------------

3682

DATE MAILED: 03/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/977,409

Applicant(s)

IVERSEN ET AL.

Examiner

Chong H. Kim

Art Unit

3682

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 October 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the connecting rod eye surrounding a piston bolt having the lubrication channel that overlaps the passage at least once during a revolution of the crank pin as recited in claim 6; and the bearing element and the rod eye each including alignment marks as recited in claim 10 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

2. Claims 2-11 are objected to because of the following informalities: "A" in line 1 of claims 2-11 should be -- The --; and "and bearing element" in claim 10, line 4 should be deleted. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 3682

4. Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 1 recites the broad recitation "(a) piston compressor", and the claim also recites "particularly a hermetically enclosed refrigerant compressor" which is the narrower statement of the range/limitation.

Claim 5 recites the limitation "the opening" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 5 recites the limitation "the passage into the oil channel" in line 3. It is indefinite because it is unclear whether the "passage" as recited therein is the same passage in the connecting rod as recited in claim 1.

Claim 6 recites the limitation "that time" in lines 7-8. There is insufficient antecedent basis for this limitation in the claim.

Claim 8 recites the limitation "the beginning of a compression phase" in line 3. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-3 and 5-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Nikolaus, U.S. Patent 4,856,366.

Nikolaus shows, in Figs. 1-17, a piston compressor, particularly a hermetically enclosed refrigerant compressor comprising;

a compressor block having a bore extending therethrough (inherent);

a crank shaft 14 positioned for rotation in the bore, the crank shaft defining an eccentric crank pin 12 at one end thereof;

the crank shaft and crank pin cooperating to define an oil channel 38 arrangement;

a connecting rod 18 attached at one end to a bearing element 10 such that there is no relative motion between the bearing element and the connecting rod, the connecting rod having a passage 36 extending therethrough and in communication with a channel 52, 41 formed by the cooperation of the connecting rod and the bearing element;

Art Unit: 3682

the crank pin extending into the bearing element and being positioned for rotation relative thereto; and a control arrangement providing communication between the channel and the oil channel arrangement, at least once per revolution of the crank pin (see Fig. 17);

wherein the control arrangement comprises at least one radial bore 52 in the bearing element, which bore overlaps an oil source upon a rotation of the crank pin;

wherein the oil source is formed by an opening 51 in the crank pin and forming part of the oil channel arrangement;

wherein the radial bore is offset in a circumferential direction relative to the opening of the passage into the oil channel (by virtue of the shaft pin being eccentric to the crankshaft 14)

wherein the connecting rod includes a first connecting rod eye 11 opposite the end attached to the bearing element, the connecting rod eye surrounding a piston bolt 13 having a lubrication channel 43 that overlaps the passage at least once during a revolution of the crank pin, the control arrangement establishing the communication at that time;

wherein the control arrangement establishes the communication during a suction phase of the compression (see Fig. 17);

wherein the control arrangement establishes the communication a second time at the beginning of a compression phase of the compressor (see Fig. 17);

wherein the bearing element defines two radial bores 52 arranged at a predetermined distance relative to each other and to the opening of the passage;

wherein the connecting rod defines a rod eye 16 positioned over the bearing element, the bearing element and the rod eye each include alignment marks 65, 66, 68, 69; and

wherein in the circumferential direction the oil channel is limited to a predetermined section.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nikolaus in view of Bushnell, U.S. Patent 6,024,548.

Nikolaus shows, as discussed above in the rejection of claim 1, the compressor comprising the crankshaft having the crank pin with the oil channel arrangement but fails to show an oil pocket in an area near the opening on the crank pin.

Bushnell shows, in Fig. 1-3, a compressor comprising a crank pin 40-2 disposed in a bearing element 22 wherein an oil channel arrangement 40-8 is formed in the crank pin, wherein the crank pin defines an oil pocket 40-11 in an area proximate the opening 40-8 forming part of the oil channel arrangement.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the opening of the oil channel of Nikolaus with the oil channel opening having the oil pocket as taught by Bushnell in order to provide a more effective lubricating method whereby the entire contacting surface of the crank pin is distributed with lubricant so that the compressor may last longer.

Art Unit: 3682

*Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Compressor having lubricant passage arrangement formed in crank pin.

Nickell, U.S. Patent 3,781,135

Sisk, U.S. Patent 4,236,874

Elson et al., U.S. Patent 4,518,323

Kocher, U.S. Patent 4,567,815

Lindstrom, U.S. Patent 5,039,2855

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chong H. Kim whose telephone number is (703) 305-0922. The examiner can normally be reached on Monday - Friday; 9:00 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A Bucci can be reached on (703) 308-3668. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7687 for regular communications and (703) 305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

chk  
March 12, 2003

  
CHONG H. KIM  
PRIMARY EXAMINER